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AMENDMENTS TO THE CLAIMS

1. (currently amended) A parametric audio system for generating at least one airborne audio beam, comprising:

at least one audio signal source configured to provide at least one audio signal;

at least one signal conditioner configured for receiving the at least one audio signal and for nonlinearly processing the audio signal to provide at least one pre-distorted signal;

a modulator configured to receive the pre-distorted signal and to convert the pre-distorted signal into ultrasonic frequencies; and

an acoustic transducer array including ~~at least one~~ a plurality of acoustic ~~transducer~~ transducers, the array being configured to receive the converted signal and to project the converted signal through the air along a selected path, thereby inverting distortion in the projected signal and regenerating the audio signal along at least a portion of the selected path with reduced net distortion,

wherein the acoustic transducer array has a bandwidth greater than 5 kHz, and

wherein the acoustic transducer array further includes:

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a backplate having a surface and a ~~plurality~~ succession of depressions formed on the surface, the respective depressions having ~~variable~~ different depths; and

a membrane with at least one conductive surface adjacently disposed along the backplate~~;~~,

wherein the membrane and ~~at least one of~~ the ~~plurality~~ succession of depressions define the ~~at least one~~ plurality of acoustic ~~transducer~~transducers, each of the plurality of acoustic transducers having an associated center frequency determined at least in part by the depth of the respective depression; ~~and~~

wherein the depressions formed on the surface of the backplate alternate in succession between at least one depression having at least one first specified depth and at least one depression having at least one second specified depth, and

wherein the spacing between the center frequencies determined at least in part by the at least one first specified depth and the at least one second specified depth is sufficient to obtain an aggregate frequency response of the acoustic transducer array having the bandwidth greater than 5 kHz~~of the acoustic transducer array is determined at least in part by the depths of the respective depressions~~.

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2. (canceled)

3. (currently amended) The parametric audio system of claim ~~2~~ 1 wherein ~~the membrane type~~ each acoustic transducer is a Sell-type electrostatic transducer.

4. (currently amended) The parametric audio system of claim ~~2~~ 1 wherein ~~the membrane type~~ each acoustic transducer ~~further~~ includes ~~a~~ the ~~conductive~~ membrane, a backplate electrode, and a DC bias source between the ~~conductive~~ membrane and the backplate electrode.

5. (previously presented) The parametric audio system of claim 4 further including

at least one driver amplifier coupled between the modulator and the acoustic transducer array and configured to receive the converted signal and to generate an amplified signal representative of the converted signal, and

a blocking capacitor coupled between the driver amplifier and the acoustic transducer array and configured to block the DC bias from the driver amplifier.

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6. (previously presented) The parametric audio system of claim 4 further including

at least one driver amplifier coupled between the modulator and the acoustic transducer array and configured to receive the converted signal and to generate an amplified signal representative of the converted signal, and

a first component coupled between the acoustic transducer array and the DC bias source and configured to block the amplified signal from the DC bias source.

7. (original) The parametric audio system of claim 4 wherein the DC bias source is provided by an embedded charge.

8. (currently amended) The parametric audio system of claim 3 wherein the Sell-type electrostatic transducer includes ~~a~~ the ~~conductive~~ membrane, a backplate electrode, and a dielectric spacer disposed between the ~~conductive~~ membrane and the backplate electrode.

9. (currently amended) The parametric audio system of claim ~~2~~ 1 wherein ~~the membrane type~~ each acoustic transducer is a Sell-type electrostatic transducer including ~~a~~ the ~~conductive~~ membrane, an

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electrode, and an insulative backplate disposed between the ~~conductive~~ membrane and the electrode.

10. (previously presented) The parametric audio system of claim 1 wherein the signal conditioner is configured to perform nonlinear inversion of the audio signal to generate the pre-distorted signal.

11. (currently amended) The parametric audio system of claim 1 further including

at least one driver amplifier coupled between the modulator and the acoustic transducer array and configured to receive the converted signal,

wherein the converted signal is an undivided signal,

wherein the driver amplifier is further configured to generate an amplified signal representative of the undivided converted signal, and

a matching filter configured to compensate for a ~~non-flat~~ frequency response of the combination of the acoustic transducer array and the driver amplifier.

12. (currently amended) The parametric audio system of claim 1

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~~wherein the at least one acoustic transducer comprises a membrane type transducer,~~

wherein the ~~membrane type~~ acoustic transducer array has a loudness figure of merit, l, defined according to the expression

$$l = (\text{Area}) \bullet (\text{Amplitude})^2, \text{ and}$$

wherein "Area" is the area of the ~~membrane type~~ acoustic transducer array, and "Amplitude" is the amplitude of the modulated carrier signal.

13. (original) The parametric audio system of claim 12 wherein "l" is greater than $(2.0 \times 10^4)\ Pa^2 \bullet in^2$.

14. (original) The parametric audio system of claim 12 wherein "l" is greater than $(4.5 \times 10^5)\ Pa^2 \bullet in^2$.

15. (currently amended) The parametric audio system of claim 1 further including

at least one driver amplifier configured to receive the modulated carrier signal and to generate an amplified signal representative of the modulated carrier signal,

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wherein the acoustic transducer array has a mechanical-acoustic resonance,

wherein the driver amplifier includes an inductor coupled to ~~a capacitive load of~~ the acoustic transducer array to form a resonant circuit having a resonance frequency ~~approximately equal to~~approximating both the frequency of the mechanical-acoustic resonance and the frequency of the ultrasonic carrier signal.

16. (currently amended) The parametric audio system of claim 15 wherein both the frequency of the mechanical-acoustic resonance and the frequency of the ultrasonic carrier signal ~~is~~ are greater than or equal to 45 kHz.

17. (original) The parametric audio system of claim 15 wherein the frequency of the ultrasonic carrier signal is greater than or equal to 55 kHz.

18. (original) The parametric audio system of claim 15 wherein the driver amplifier further includes a damping resistor coupled between the inductor and the capacitive load of the acoustic transducer array.

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19. (original) The parametric audio system of claim 15 wherein the driver amplifier further includes a step-up transformer and the inductor is provided by the step-up transformer.

20. (currently amended) A parametric audio system for generating at least one airborne audio beam, comprising:

at least one audio signal source configured to provide at least one audio signal;

at least one signal conditioner configured for receiving the at least one audio signal and for nonlinearly processing the audio signal to provide at least one pre-distorted signal;

a modulator configured to receive the at least one pre-distorted signal and to convert the pre-distorted signal into ultrasonic frequencies;

at least one driver amplifier configured to receive the at least one converted signal, wherein the at least one converted signal is an undivided signal, the at least one driver amplifier being further configured to generate at least one amplified signal representative of the undivided converted signal;

an acoustic transducer array including a plurality of acoustic transducers, the array being configured to receive the at least one amplified signal and to project the amplified signal

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through the air for inverting distortion in the projected signal and for subsequent regeneration of the audio signal with reduced net distortion;

a matching filter configured to compensate for a ~~non-flat~~ frequency response of the combination of the acoustic transducer array and the driver amplifier; and

a delay circuit configured to apply at least one predetermined time delay to the at least one converted signal,

wherein the acoustic transducer array further includes:

a backplate having a surface and a ~~plurality~~ succession of depressions formed on the surface, the respective depressions having ~~variable~~ different depths; and

a membrane with at least one conductive surface adjacently disposed along the backplate;

wherein the membrane and the ~~plurality~~ succession of depressions define the ~~respective~~ plurality of acoustic transducers, each of the plurality of acoustic transducers having an associated center frequency determined at least in part by the depth of the respective depression; ~~and~~

wherein the depressions formed on the surface of the backplate alternate in succession between at least one depression

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having at least one first specified depth and at least one depression having at least one second specified depth, and

wherein the spacing between the center frequencies determined at least in part by the at least one first specified depth and the at least one second specified depth is sufficient to obtain an aggregate frequency response of the acoustic transducer array having a bandwidth ~~of the acoustic transducer array~~ greater than 5 kHz~~is determined at least in part by the depths of the respective depressions~~.

21. (previously presented) The parametric audio system of claim 20 wherein the delay circuit is configured to apply the at least one predetermined time delay to the at least one converted signal to steer the converted signal through the air along at least one path by the acoustic transducer array.

22-23. (canceled)

24. (original) The parametric audio system of claim 20 wherein the delay circuit is configured to apply a predetermined time delay, d, according to the expression d = (x • sin(θ))/c, wherein

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"x" is the distance from a datum to a respective acoustic transducer and "c" is the speed of sound.

25. (currently amended) An acoustic transducer array, comprising:

a backplate including a surface and a ~~plurality~~ succession of depressions formed on the surface, the respective depressions having ~~variable~~ different depths; and

a membrane with at least one conductive surface adjacently disposed along the backplate,

wherein the acoustic transducer array has a bandwidth greater than 5 kHz,

wherein the membrane and ~~at least one of~~ the ~~plurality~~ succession of depressions define ~~at least one acoustic transducer~~ the plurality of acoustic transducers, each of the plurality of acoustic transducers having an associated center frequency determined at least in part by the depth of the respective depression, ~~and~~

wherein the depressions formed on the surface of the backplate alternate in succession between at least one depression having at least one first specified depth and at least one depression having at least one second specified depth, and

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wherein the spacing between the center frequencies determined at least in part by the at least one first specified depth and the at least one second specified depth is sufficient to obtain an aggregate frequency response of the acoustic transducer array having the bandwidth greater than 5 kHz~~of the acoustic transducer array is determined at least in part by the depths of the respective depressions~~.

26-27. (canceled)

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